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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
08/981,360	12/18/1997	Kari Kirjavainen	U 011574-0	3410
140	7590	03/15/2005	EXAMINER	
LADAS & PARRY 26 WEST 61ST STREET NEW YORK, NY 10023			BRUENJES, CHRISTOPHER P	
			ART UNIT	PAPER NUMBER
			1772	
DATE MAILED: 03/15/2005				

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

08/981,360

Applicant(s)

KIRJAVAINEN ET AL.

Examiner

Christopher P Bruenjes

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 February 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 and 15-22 is/are pending in the application.
- 4a) Of the above claim(s) 16 and 17 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-12, 15 and 18-22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☒ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

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DETAILED ACTION

Response to Amendment

1. Applicant's request for reconsideration of the finality of the rejection of the last Office action is persuasive and, therefore, the finality of that action is withdrawn.

Priority

2. Acknowledgment is made of applicant's claim for foreign priority based on applications filed in Finland and Sweden on June 26, 1995, September 20, 1995, April 4, 1996, and April 29, 1996. It is noted, however, that applicant has not filed certified copies of the applications Finland 953162, Sweden 9503272-8, Finland 961540, and Finland 961822 as required by 35 U.S.C. 119(b).

WITHDRAWN REJECTIONS

3. The 35 U.S.C. 102 rejections of claims 1-2, 5-9, 11-12, 15, and 18-22 as anticipated by Stanley have been withdrawn due to Applicant's arguments and amendments in the Paper filed February 23, 2005.

4. The 35 U.S.C. 103 rejections of claims 3-4 over Stanley in view of Bast have been withdrawn due to Applicant's amendments in the Paper filed February 23, 2005.

5. The 35 U.S.C. 103 rejection of claim 10 over Stanley in view of Donuiff has been withdrawn due to Applicant's amendments in the Paper filed February 23, 2005.

NEW REJECTIONS

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 11 and 12 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The limitation that the tubular product is defined by the tubular product in combination with other products renders the claim vague and indefinite because it is not understood how the same product can be defined as itself in combination with other products. If the combination of the product of claim 1, another

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tubular product, and joint mechanism is desired, the claims should be rewritten to claim the "tubular product according to claim 1, further comprising another tubular product joined to said tubular product by means of" and then followed by the means claimed in either claim 11 or 12.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 1-2, 5-6, 8, 15, 18-19, and 21-22 are rejected under 35 U.S.C. 102(b) as being anticipated by Maimets (USPN 5,351,720).

Maimets anticipates a tubular product comprising at least a tubular base layer or existing conduit wall (see abstract), an innermost layer (reference number 1, Figure 8), and a layer of foamed plastic (reference number 19, Figure 8) between and adhered to the base layer and the innermost layer. The innermost layer is made of plastic, specifically polyethylene (col.20, 1.30-33 and 1.46-50). The process limitation that the

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innermost layer is formed "by continuous extrusion", receives little patentable weight in an article claim because product claims are not limited to the manipulations of the recited steps, only the structure implied by the steps. See MPEP 2113. In this case the innermost layer is formed of polyethylene, which is the material used to form the innermost layer of the instant invention, in a tubular shape and is bonded to a foamed plastic layer, therefore meeting all of the structural limitations of the innermost layer, regardless of whether the innermost layer is formed by extrusion or injection molding or some other method. The foamed plastic layer is a polyethylene foam plastic tying layer that is impregnated with grout in order to make it an adhesion plastic to bond to the innermost layer and the base layer (col.15, 1.34-43 and 1.59-68). The process limitation that the foamed plastic is "meltingly extruded simultaneously with the innermost layer against the base layer", receives little patentable weight in an article claim because product claims are not limited to the manipulations of the recited steps, only the structure implied by the steps. The patentability of a product does not depend on its method of production. See MPEP 2113. In this case the foamed plastic layer is a tying layer of adhesion plastic made from the same plastic material, polyethylene foam, that the instant invention

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is formed from, and is intimately bonded with the base layer and the innermost layer. Therefore, the foamed plastic and innermost layers anticipate all of the structural limitations including the implied structure of the process limitations of the claimed invention. Regarding claim 2, the tubular product is a sewer line or conduit in the ground (col.1, 1.5-12). Regarding claim 5, the sewer pipes are made of clay pipe (col.12, 1.63-64), which is inherently rough compared to plastic layers formed of polyethylene. Regarding claim 6, the tying layer contains grout, which is a filling agent. Regarding claims 8, 18-19, and 21, the tying layer is expanded as shown in Figures 14a-14d, therefore the foam bubbles within the foam are inherently stretched.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

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The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

8. Claims 3-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Maimets (USPN 5,351,720) in view of Bast (USPN 4,438,056).

Maimets teaches all that is claimed in claim 1 as shown above, but fails to explicitly teach corrugated metal as the base layer of the storm and sewer pipelines. However, Bast teaches that corrugated steel pipes are used as storm and sanitary sewer pipelines, especially when a plastic liner is used on the inner surface of the corrugated steel pipe with a foam tie layer between the inner most plastic liner and the base layer (col.3, 1.20-50). A steel pipe is substituted for a cement or clay pipe because it is lighter and less expensive. A steel pipe is corrugated in order to stiffen the pipe providing the necessary rigidity and strength for a sewage or water pipeline (col.3, 1.37-40). A corrugated pipe, while exhibiting

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an excellent strength to weight ratio, ease of installation and favorable economics, the corrugations increase resistance to hydraulic flow because of the roughness and is subject to corrosion (col.3, 1.20-28). The foam material tie layer and plastic innermost layer make the inner surface of the pipe smooth (col.3, 1.34-50). One of ordinary skill in the art would have recognized that sewer and water pipelines made of smooth, plastic lined, corrugated steel pipe with a foam layer and innermost layer, are substituted for traditional cement and clay sewer and water pipelines, in order to provide a pipe having increased strength to weight ratio, ease of installation and favorable economics, without causing increased resistance to hydraulic flow or corrosion of the pipe.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the applicant's invention was made to use the corrugated steel pipe of Bast as the base layer of Maimets, in order to increase the strength to weight ratio, ease installation and save money compared to traditional cement or clay pipelines, as taught by Bast.

9. Claims 7, 9, and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Maimets (USPN 5,351,720) in view of Stanley (USPN 4,640,313).

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Maimets teaches all that is claimed in claim 1, that the tying layer is formed of polyethylene foam, and that the tying layer has stretched foam bubbles, as shown above. Maimets fail to teach that the polyethylene plastic forming the innermost layer is oriented, or that the polyethylene forming the tying layer is cross-linked. Regarding claim 7, however, Stanley teaches that in order to form a dimensionally stable inner skin layer the inner skin layer is drawn both axially and radially therefore forming oriented plastic (col.2, 1.25-36). One of ordinary skill in the art would have recognized that in order to form a dimensionally stable inner skin on the liner for repairing sewer lines, the plastic is oriented by drawing the plastic in both the axial and radial directions, as taught by Stanley.

Therefore, it would have been obvious to one having ordinary skill in the art at the time Applicant's invention was made to orient the component polymeric molecules of the innermost layer of Maimets, in order to provide the liner with a dimensionally stable inner skin as desired in forming liners for repair of sewer lines, such as the sewer line of Maimets, as taught by Stanley.

Regarding claim 9, Stanley teaches that foaming of polyethylene foam used in forming intermediate layers between

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the inner layer of a liner and the base layer being repaired of sewer lines is cross-linked in order to aid in foaming the material (col.8, 1.38-39). One of ordinary skill in the art would have recognized that material such as polyethylene foam is cross-linked in order to aid foaming, when forming intermediate layers found between liners and base layers of sewer lines being repaired, as taught by Stanley.

Therefore, it would have been obvious to one having ordinary skill in the art at the time Applicant's invention was made to add a cross-linking agent to the polyethylene foam of Maimets to form cross-linked polyethylene foam in order to aid in foaming of the polyethylene when forming the layer between the liner and base layer of sewer lines being repaired, such as the sewer line of Maimets, as taught by Stanley.

10. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Maimets (USPN 5,351,720) in view of Stanley (USPN 4,640,313) as applied to claim 1 above, and further in view of Donuiff et al (USPN 4,870,111).

Maimets and Stanley combined teach all that is claimed in claims 1 as discussed above, but fail to explicitly teach forming the tie layer from grafted polyethylene. Stanley teaches that the foam is a cross-linked polyethylene, but not

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grafted polyethylene. However, Donuiff et al teach that polyolefin foam is more resilient and flexible than polystyrene foam, but has a narrow molding range unless the foam is crosslinked (col.1, 1.36-59). Donuiff et al also teach that moldable crosslinked polyethylene is formed in several ways including adding a crosslinking agent, or radiation (col.2, 1.35-64), but these methods are very expensive. Donuiff et al further teaches that an improved method, which would not cost as much to manufacture and have superior properties, includes taking a silane-modified polyolefin or grafted polyethylene containing a silanol condensation catalyst with a blowing agent to produce moldable foamed beads which cross link internally when exposed to moisture (col.3, 1.31-35). One of ordinary skill in the art would have recognized that a polyethylene foam should be cross linked in order to make the foam more moldable and therefore able to be extruded, and that a grafted polyolefin containing a catalyst is less expensive to form into a moldable cross linked foam than a polyolefin combined with a cross linking agent, as taught by Donuiff et al.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the applicant's invention was made to substitute a grafted polyolefin of Donuiff et al for the polyolefin of Stanley and Maimets, in order to make the

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crosslinking process before foaming the tie layer less expensive, as taught by Donuiff et al.

11. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Maimets (USPN 5,351,720) in view of Cook et al (USPN 4,386,629).

Maimets teach all that is claimed in claim 1 and suggests that the tubular product taught can be joined to other similar products by means of a joint. Maimets fails to teach the type of joint used. However, Cook et al teaches that a cross-linked plastic sleeve that has a diameter compressed to a smaller size than normally prior to heating, which causes the sleeve to attempt to expand to its normal size before pressing up against the inner surface of the two tubular products being joined, is a well-known joint used in the art of forming pipe lines (see abstract and col.4, 1.23-27). One of ordinary skill in the art would have recognized that a cross-linked plastic sleeve having a diameter compressed prior to heating, in which the sleeve presses against the pipes joined, is a well known joint in the art of pipeline formation, as taught by Cook et al.

Therefore, it would have been obvious to one having ordinary skill in the art to use the joint of Cook et al as the joint in Maimets in order to connect two tubular products, since

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Maimets suggests that the tubular product of Maimets is joined to other similar products by means of well-known and the joint of Cook et al is a well-known joint in the art, as taught by Cook et al.

12. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Maimets (USPN 5,351,720) in view of Hunter (USPN 4,277,091).

Maimets teaches all that is claimed in claim 1 and suggests that the tubular product taught can be joined to other similar products by means of a joint. Maimets fails to teach the type of joint used. However, Hunter teaches a well-known joint used to interlock lengths of lined conduit to form a continuously lined conduit (col.1, 1.7-12). When forming connections between conduits having a liner such as the conduits of Maimets the joint cannot be formed by traditional methods such as welding or traditional interference fit joints (col.1-2). Instead in order to preserve the lined conduits at the connection point a sleeve is situated inside the joint (reference 30, Figure 2) and a collar that clamps by means of its heat-recoverability is situated outside the joint (reference number 20, Figure 2 and col.2, 1.56-67). One of ordinary skill in the art would have recognized that a sleeve and clamping collar combination joint

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is used when joining two lined conduits, in order to preserve the lined conduits at the connection point, as taught by Hunter.

Therefore, it would have been obvious to one having ordinary skill in the art at the time Applicant's invention was made to use the sleeve situated inside the joint and the clamping collar situated outside the joint of Hunter as the joint to connect two tubular products of Maimets, in order to preserve the lined conduits at the connection point, as taught by Hunter.

ANSWERS TO APPLICANT'S ARGUMENTS

13. Applicant's arguments regarding the 35 U.S.C. 102 and 103 rejections of record have been considered but are moot since the rejections have been withdrawn.

Conclusion

14. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Hunter (USPN 5,104,595).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher P Bruenjes whose telephone number is 571-272-1489.

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The examiner can normally be reached on Monday thru Friday from 8:00am-4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Harold Pyon can be reached on 571-272-1498. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Christopher P Bruenjes


Examiner

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CPB

CPB

March 10, 2005


HAROLD PYON
SUPERVISORY PATENT EXAMINER
1772

3/10/05